

REMARKS

Claims 1-7 are pending.

Applicants' Response to the Claim Rejections under 35 U.S.C. §103(a)

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al.

In response thereto, applicants respectfully submit that the present invention is not obvious in view of Nishimura for at least the reason that Nishimura does not provide for all the features of the claims, nor is there any reason prompting a skilled artisan to modify Nishimura so as to derive the present invention.

Specifically, Nishimura at least fails to provide for the feature of parent claim 1 as to an interlayer-strength improvement technique applied on the impact-absorbing composite structure in an oblique manner or in a gradual manner with respect to an impact orientation. As noted in the previous response and throughout the current specification, this configuration allows for a fixed-time control of the progress of destruction while absorbing the impact by self destruction, when an impact is applied.

The current rejection asserts that Nishimura discloses a reinforced woven fabric composite comprising carbon fibers at col. 17, ln 44, in an epoxy resin matrix at col. 28, ln 22 wherein the composite is stitched integrally at col. 11, ln 1-4. Page 2 of the Office Action.

Nishimura discloses a reinforcing woven fabric using as weaving threads flat and substantially non-twisted multi-filaments of reinforcing fiber having less than 0.5 wt, % of sizing

agent provided thereto and a binding property of 400-800 mm in hook drop value. Nishimura states at the disclosures encompassing col. 11, line 1-4 cited by the rejection that:

“The preform according to the present invention is formed by stacking a plurality of the above-described reinforcing woven fabrics and stitching them integrally using a stitch yarn, or by stacking at least one of the above-described reinforcing woven fabrics and another reinforcing woven fabric and stitching them integrally using a stitch yarn.”

Nishimura further states at the disclosures encompassing col. 17, line 44 cited by the rejection:

“The carbon fiber multifilament forming the weft Twf or a warp Twr has a number of carbon fiber filaments of 5,000-24,000, is substantially nontwisted, has a hook drop value of 400-800 mm, and it is wound on the bobbin 1 or bobbins 20a and 20b of creels 20 described later each formed as a tubular pipe at a predetermined width of traversing while kept in a flat formation by for example, a sizing agent in advance.”

Nishimura further states at the disclosures encompassing col. 28, line 22 cited by the rejection:

“an epoxy resin having an elongation of 3.5% was impregnated into the obtained carbon fiber reinforcing woven fabric to prepare a prepreg. In this prepreg, similarly to the carbon fiber reinforcing woven fabric, the surface was flat, and when the surface of the cross section of a laminated plate was observed

by a microscope, the carbon fibers were uniformly distributed and voids were not observed" at col. 28, line 22.

The rejection further acknowledges that Nishimura does not disclose that the stitching is applied in an oblique manner or in a gradual manner with respect to an impact orientation and the stitching is applied to a portion which is at a predetermined distance from an end portion of the impact-absorbing composite structure. In regard to this feature, the rejection maintains that it would have been obvious to the skilled artisan to have applied the stitch in Nishimura in an oblique manner or in a gradual manner with respect to an impact orientation or to a portion which is at a predetermined distance from an end portion of the impact-absorbing composite structure, and would have been motivated to do so by the desire to create a fibrous composite that has increased strength properties and high reliability.

As set forth in *Takeda v. Alphapharm* 492 F.3d 1350, 1356-1357; 83 USPQ2d 1169 (Fed. Cir. 2007):

While the *KSR* Court rejected a rigid application of the teaching, suggestion, or motivation ("TSM") test in an obviousness inquiry, the Court acknowledged the importance of identifying "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" in an obviousness determination. *KSR*, 127 S. Ct. at 1731.

However, applicants respectfully note that there is no reason within the art which would prompt a skilled artisan to conclude that the application of the stitch of Nishimura in an oblique manner or in a gradual manner with respect to an impact orientation or to a portion which is at a

predetermined distance from an end portion of the impact-absorbing composite structure would increase strength properties and reliability.

Nishimura is clearly directed to a tensile strength of the woven fabric. In fact, Nishimura states at col. 5, line 51: “the binding property of a flat multifilament of reinforcing fiber in the present invention is controlled in the range of 400-800mm in hook drop value.” Nishimura is completely silent about absorbing an impact by self destruction of fiber, when an impact is applied. As such, there is no possible rationale whereby a skilled artisan would be able to derive the feature of parent claim 1 requiring an interlayer-strength improvement technique applied on the impact-absorbing composite structure in an oblique manner or in a gradual manner with respect to an impact orientation.

Wherefore, applicants respectfully submit that the present invention as set forth in parent claim 1 and its respective dependent claims is not obvious in view of Nishimura. Wherefore, favourable reconsideration is respectfully requested.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants’ undersigned attorney to arrange for an interview to expedite the disposition of this case.

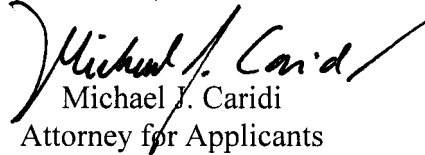
Application No. 10/562,723
Art Unit: 1794

Response under 37 C.F.R. §1.116
Attorney Docket No. 053327

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read "Michael J. Caridi", is written over the printed name and title.

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